

AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior versions of claims in the application:

LISTING OF CLAIMS:

1. (CURRENTLY AMENDED) A method of simultaneously initializing the antiferromagnetic layers in a spin valve sensor which has a free layer, bias tabs for stabilization of said free layer, said bias tabs being comprised of a nonmagnetic layer, a ferromagnetic layer antiparallel coupled to a portion of said free layer, and a first antiferromagnetic layer adjacent to said ferromagnetic layer, said sensor additionally comprising a pinned layer exchange coupled to a second antiferromagnetic layer, comprising:

placing the sensor in an external magnetic field;

adjusting the a magnitude of said external magnetic field to cause the magnetization of said ferromagnetic layer in said bias tabs to be substantially perpendicular to the direction of said external magnetic field;

heating the sensor above the blocking temperature of both of the antiferromagnetic layers; and,

cooling the sensor below the blocking temperature of both of the antiferromagnetic layers in the presence of said external magnetic field.

2. (CURRENTLY AMENDED) [[A]] The method as recited in claim 1, wherein the heating and cooling are performed in a single sequence.

3. (CURRENTLY AMENDED) A method ~~as recited in claim 2~~, of simultaneously initializing the antiferromagnetic layers in a spin valve sensor which has a free layer, bias tabs for stabilization of said free layer, said bias tabs being comprised of a nonmagnetic layer, a ferromagnetic layer antiparallel coupled to a portion of said free layer, and a first antiferromagnetic layer adjacent to said ferromagnetic layer, said sensor additionally comprising a pinned layer exchange coupled to a second antiferromagnetic layer, comprising:

placing the sensor in an external magnetic field;

adjusting a magnitude of said magnetic field to cause the magnetization of said ferromagnetic layer in said bias tabs to be substantially perpendicular to the direction of said magnetic field;

heating the sensor above the blocking temperature of both of the antiferromagnetic layers; and,

cooling the sensor below the blocking temperature of both of the antiferromagnetic layers in the presence of said magnetic field,

wherein a direction of the magnetic field during the single sequence of heating and cooling is not oriented in a direction parallel to ~~the~~ an ABS.

4. (CURRENTLY AMENDED) A method ~~as recited in claim 2~~, of simultaneously initializing the antiferromagnetic layers in a spin valve sensor which has a free layer, bias tabs for stabilization of said free layer, said bias tabs being comprised of a nonmagnetic layer, a ferromagnetic layer antiparallel coupled to a portion of said free layer, and a first antiferromagnetic layer adjacent to said ferromagnetic layer, said sensor

additionally comprising a pinned layer exchange coupled to a second antiferromagnetic layer, comprising:

placing the sensor in an external magnetic field;

adjusting a magnitude of said magnetic field to cause the magnetization of said ferromagnetic layer in said bias tabs to be substantially perpendicular to the direction of said magnetic field;

heating the sensor above the blocking temperature of both of the antiferromagnetic layers; and,

cooling the sensor below the blocking temperature of both of the antiferromagnetic layers in the presence of said magnetic field,

wherein the magnetic field is varied from a start value to an optimum value during the single sequence of heating and cooling in the magnetic field.

5. (CURRENTLY AMENDED) [[A]] The method as recited in claim 4, wherein the magnetic field is increased above the optimum value and then reduced to the optimum value during the single sequence of heating and cooling in the magnetic field.

6. (CURRENTLY AMENDED) [[A]] The method as recited in claim 4, wherein the magnetic field is increased from a value below the optimum value to the optimum value during the single sequence of heating and cooling in the magnetic field.

7. (CURRENTLY AMENDED) [[A]] The method as recited in claim 1, wherein the second antiferromagnetic layer and the free layer have substantially the same width.

8. (CURRENTLY AMENDED) [[A]] The method as recited in claim 1, wherein the first and second antiferromagnetic layers have substantially the same composition.

9. (WITHDRAWN) A method of simultaneously initializing the antiferromagnetic layers in a spin valve sensor which has an air bearing surface (ABS); a pinned layer having first and second ferromagnetic layers oriented antiparallel to each other; a first antiferromagnetic layer exchange coupled to the pinned layer; a free layer separated from the pinned layer by a nonmagnetic layer; and, a second antiferromagnetic layer above at least one portion of the free layer and exchange coupled with the free layer for providing magnetic bias stabilization of the at least one portion of the free layer, wherein the first and second antiferromagnetic layers have substantially the same blocking temperature, comprising:

placing the sensor in an external magnetic field; AND

initializing the first and second ferromagnetic layers in a single sequence of heating and subsequent cooling in the magnetic field.

10. (WITHDRAWN) A method as recited in claim 9, wherein a direction of the magnetic field during the single sequence of heating and cooling is not oriented in a direction parallel to the ABS.

11. (WITHDRAWN) A method as recited in claim 9, wherein the second antiferromagnetic layer is a pair of tabs above opposite end regions of the free layer.

12. (WITHDRAWN) A method as recited in claim 9, wherein the second antiferromagnetic layer and the free layer have substantially the same width.

13. (WITHDRAWN) A method as recited in claim 9, wherein the magnetic field is varied from a start value to an optimum value during the single sequence of heating and cooling in the magnetic field.

14. (WITHDRAWN) A method as recited in claim 13, wherein the magnetic field is increased above the optimum value and then reduced to the optimum value during the single sequence of heating and cooling in the magnetic field.

15. (WITHDRAWN) A method as recited in claim 13, wherein the magnetic field is increased from a value below the optimum value to the optimum value during the single sequence of heating and cooling in the magnetic field.

16. (WITHDRAWN) A method as recited in claim 9, wherein the first and second antiferromagnetic layers have substantially the same composition.